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ABSTRACT

A project was conducted to train Pennsylvania vocational educators to manage, develop, and evaluate interactive video and computer-assisted instruction (CAI). Activities included a day-long workshop that consisted of a general introduction session and small group sessions to provide hands-on experience with interactive video software, an overview of the various components of the production process, and an overview of the role this technology has in addressing individual learner needs and styles. Following the workshop, 25 participants were selected for an intensive training program on the development of interactive video/videodisc and computer-assisted instructional materials. The intensive course involved 75 hours of training during a 6-month period. As a result of the training, participants developed at least six different interactive videodisc programs. Then they assisted their institutions in implementing this technology. The project was considered successful by participants and developers. Products produced by the project included a final report, newsletters and flyers, an interactive videodisc demonstration program, and instructional materials used during the inservice training sessions. (KC)

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II. Final Report Summary

a. Abstract

86-8009 Training Vocational Educators in the Development and Utilization of Instructional Interactive Laser Disc and Computer Assisted Instruction Materials

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$66,435 Federal
7/1/87 to 6/30/88

The purpose of this project was to train vocational education faculty to manage, develop, and evaluate interactive video and Computer Assisted Instruction (CAI).

Objectives

A. (Project Coordination and Implementation)

(1) By July 31, 1987 the CID will design a day-long workshop for each participating AVTS.

(2) The CID designed workshop will include a general introduction session and small group sessions which provide hands-on experience with interactive video software, an overview of the various components of the production process, and an overview of the role this technology has upon addressing individual learner needs and styles.

(3) By October 15, 1987 the CID will have delivered the day long introductory workshop at each of the participating AVTSs.

(4) By October 15, 1987 the CID will have completed the agenda of the intensive training program and distributed the announcements.

(5) By November 3, 1987 in cooperation with each of the participating AVTSs, twenty-five participants will be identified to participate in the intensive training program which will provide instruction on the development of interactive video/video disc and computer-assisted instructional materials.

(6) During November, 1987 through April, 1988, each of the twenty-five participants will complete 75 hours of training at the CID.

(7) By April, 1988 the training participants with CID support will have developed at least six different interactive video disc programs.

(8) By May 1, 1988 the interactive video disc will have been mastered with sufficient copies to enable each participating institution to have access to this software.

(9) By June 5, 1988 the CID will assist each participating institution in developing a plan for implementing this technology.

(10) By June 30, 1988 the CID will assist each participating institution in developing a plan for implementing this technology.

B. (Participant Training)

(1) Each participant will be familiarized with the concept of CAI and interactive video.

(2) Each participant will experience CAI and interactive video software.

(3) Each participant will utilize storyboarding, authoring language/system, and video equipment in the production of an interactive video disc/CAI software relevant to vocational education instruction.

(4) Each institution will develop a plan to support the integration of interactive video technology.

Outcomes

The project proved to be worthwhile and meaningful to many of the participants. Logistical problems were encountered in getting participants from the different vocational institutions involved in the project. A demonstration interactive video disc was produced with involvement from participating teachers. Eighteen workshops and/or work sessions introduced participants to interactive video and CAI.

All participants were familiarized with the technology of interactive video and computer assisted instruction. Each of the participants storyboarded, scripted, and had the opportunity to video tape.

The intensive training gave each of the participants the opportunity to enhance their skill level in all phases of the production process. This interactive video disc technology will be incorporated into the training programs.

Audience

The resulting reports will be useful to secondary schools including AVTS, community colleges, and four year post-secondary institutions to help in training faculty in the process of utilizing and developing interactive video and CAI instructional software.

Published Materials

- Final Report
- Newsletters and flyers
- Interactive video disc demonstration program
- Instructional materials used during the inservice training sessions

b. **Background**

Vocational education instructors have, over the years, incorporated a variety of technology into their instructional delivery systems including microcomputers, video, and television. Each of these methods has provided a new dimension to supporting the learning needs of the students. A relatively new technology, interactive video/video disc, interfaces these technologies enabling expansion of the scope of classroom activities as well as increasing the responsiveness to individual learner styles and abilities. Interactive video is the interfacing of a micro-computer with either a video cassette recorder or a laser disc player. This interfacing enables the micro-computer to control the video playback equipment. Segments of video can be branched along with computer text and graphics and displayed on the computer monitor.

In 1982, Luzerne County Community College established a Center for Instructional Development. This new unit was established to support staff development, curricula development, computer literacy activities, and materials development especially computer abased instruction and interactive video and video disc. The positive response which the CID recieved from faculty and other educational institutions has led to an expansion of services which include production contracts with publishers, higher education institutions, and industry.

The CID staff is comprised of a director, support staff, and technical experts which include instructional technologists, programmers, and video production staff. For each project a content expert joins the development team. The content expert with the support of an instructional designer develops a scope and sequence of the content. A storyboard for the entire project is created. The storyboard details for each module of instruction--the objective, design of each screen, accompanying video and narration. Each specialist utilizes the storyboard to prepare the final product. That is the computer programmer creates a program, the video staff shoots and edits sequences. Once this is completed the whole team evaluates the final product. Evaluation of contents accuracy is also conducted by the impacted department faculty. During the first semester of implementation, extensive assessment is conducted to determine ease of use, clarity of directions and

content, student appraisal of comfort with the computer, student achievement level, and grade attainment in course. Based upon the outcomes of this extensive evaluation process, modifications are made.

III. Method

The intent of this project was to train vocational education faculty to manage, develop, and evaluate interactive video (IV) and Computer Assisted Instruction (CAI) software. It was implemented by providing an overview and an intensive training program which emphasized the application of this technology. To this end, the following objectives were identified:

A. (Project Coordination and Implementation)

(1) By July 31, 1987 the CID will design a day-long workshop for each participating AVTS.

(2) The CID designed workshop will include a general introduction session and small group sessions which provide hands-on experience with interactive video software, an overview of the various components of the production process, and an overview of the role this technology has upon addressing individual learner needs and styles.

(3) By October 15, 1987 the CID will have delivered the day long introductory workshop at each of the participating AVTSs.

(4) By October 15, 1987 the CID will have completed the agenda of the intensive training program and distributed the announcements.

(5) By November 3, 1987 in cooperation with each of the participating AVTSs, twenty-five participants will be identified to participate in the intensive training program which will provide instruction on the develtiment of interactive video/video disc and computer-assisted instrucitonal materials.

(6) During November, 1987 through April, 1988, each of the twenty-five participants will complete 75 hours of training at the CID.

(7) By April, 1988 the training participants with CID support will have developed at least six different interactive video disc programs.

(8) By May 1, 1988 the interactive video disc will have been mastered with sufficient copies to enable each participating institution to have access to this software.

(9) By June 5, 1988 the CID will assist each participating institution in developing a plan for implementing this technology.

(10) By June 30, 1988 the CID will assist each participating institution in developing a plan for implementing this technology.

B. (Participant Training)

(1) Each participant will be familiarized with the concept of CAI and interactive video.

(2) Each participant will experience CAI and interactive video software.

(3) Each participant will utilize storyboarding, authoring language/system, and video equipment in the production of an interactive video disc/CAI software relevant to vocational education instruction.

(4) Each institution will develop a plan to support the integration of interactive video technology.

The following describes the methods and procedures used to meet the objectives of the project. The results are further discussed in Section IV, ANALYSIS.

In July 1987, the planning process was initiated for an introductory workshop for the introduction to the development and implementation of interactive video instruction. During the first part of August 1987, this orientation/planning session was held for representatives of the participating AVTSs. This session was designed to provide an overview of the many facets of this technology - from the identification of hardware components to the design of interactive video software. The basic agenda for the project was described to the participants at this time.

During September and October 1987, a day-long introductory workshop was designed as a large-group inservice to be used at each of the participating AVTSs. The workshop included a more in-depth introduction to interactive video instruction and the procedures for the design and development of IV software. These were held from October 1987 through February 1988.

In addition to the large group workshops, individualized work sessions were held, beginning in December 1987 and running through June 1988. During the individualized work sessions, the participants were involved in all phases of the design and production of an interactive video disc featuring a module from each of the participating AVTSs. The participants were involved with the development of the content matter and served as subject matter experts and instructional designers, and were involved in planning for the video production. The content used in these sample programs ranged from the demonstration of the materials used in a machine shop to examples of interactive instruction in a cosmotology program. The CID staff, including instructional designers and video production professional staff, served as resource persons to the programs. Ideas for program development in the future were also solicited. See Section VII, **Attachments**, for the resulting concepts and ideas.

In mid-January 1988, after the programs were planned and storyboards were completed, the filming for the programs began. The participants assisted in the video production by setting up the shots, operating the equipment being featured, and serving as the actors and actresses as necessary. The filming was completed by early February 1988. The programs were completed and mastered onto a single video disc. The narration scripts for the programs developed are included in Section VII, **Attachments**.

The project proved to be worthwhile and meaningful to many of the participants. Many of the participants wished to maintain a passive role in the project. Some logistical problems were encountered in getting participants from different vocational institutions in two counties involved in the project. The faculty who did participate did so on their own time, as no release time or other renumeration was available to them from their institutions.

IV. Project Summary

a. Analysis

The data collected shows that interest in IV and CAI software use and/or development can be generated within AVTS. Many participants wished to maintain a somewhat passive stance but were receptive to the new technology and could be further induced with more incentive. Many of the schools lacked the necessary computer hardware and facilities needed to utilize IV/CAI technology at this time.

The chart on the following four pages details what steps were taken to meet and implement the desired activity for each objective.

Planned Objective	Implementation Description
A. (Project Coordination and Implementation)	
(a) By July 31, 1987 the CID will design a day-long workshop for each participating AVTS.	A day long workshop was designed to provide an introduction to the use and implementation of interactive video materials into the curriculum. This workshop consisted of several topics - an overview of the hardware and software used in video disc technology, how to design interactive video materials, and ways in which the technology can be implemented into the curriculum.
(b) The CID designed workshop will include a general introduction session and small group sessions which provide hands-on experience with interactive video software, an overview of the various components of the production process, and an overview of the role this technology has upon addressing individual learner needs and styles.	A day-long introductory session was planned as well as follow-up small group and one-on-one work sessions. These sessions built on material presented in the large group session and provided hands-on experience with interactive video software and an overview of the role this technology has upon addressing individual learner needs and styles.
(c) By October 15, 1987 the CID will have delivered the daylong introductory workshop at each of the participating AVTS's.	Eighteen workshops and/or work sessions introduced participants to interactive video and CAI. See attached for schedule of presentations completed.
(d) By October 15, 1987, the CID will have completed the agenda of the intensive training program and distributed the announcements.	Agenda was completed. Letters announcing the availability of the training program were sent to the five AVTS directors.

Planned Objective	Implementation Description
(e) By November 3, 1987, in cooperation with each of the participating AVTSs, twenty-five participants will be identified to participate in the intensive training program which will provide instruction on the development of interactive video/video disc and computer-assisted instructional materials.	AVTS faculty and administrators were surveyed by mail to determine who would be interested in participating in the training program. A total of 60 faculty and administrators eventualy participated in the training.
(f) During November 1987 through April 1988, each of the twenty-five participants will complete 75 hours of training at the CID.	A total of 2755 total training hours involved participants from both the faculty and staff of the various institutions during the work sessions and presentations..
(g) By April 1988, the training participants with CID support will have developed at least six different interactive video disc programs.	Six modules were accessed from the main menu of choices in the interactive video program. As part of the overall demonstration program, Susquehanna AVTS had one module, Hazelton AVTS had two modules, and Wilkes-Barre AVTS had three modules.
(h) By May 1, 1988 , the interactive video disc will have been mastered with sufficient copies to enable each participating institution to have access to this software.	The videodisc was pressed and programmed. It is currently available to the schools through the CID.
(i) By June 5, 1988, The CID will return to each of the participating institutions, and demonstrate the peer developed software.	Followup sessions were held at the participating AVTS to view the completed demonstration disk .

Planned Objective	Implementation Description
(j) By June 30, 1988, the CID will assist each participating institution develop a plan for implementing this technology.	Through meetings with AVTS Directors, assessments were made of existing equipment in their respective schools which could be used for CAI and interactive video instruction and what other types of equipment would be needed for implementation. In addition, institutions were presented with information on utilizing CAI and interactive video, both through the presentations and selected published articles and bibliographies.
B. (Participant Training)	
(a) Each participant will be familiarized with the concept of CAI and interactive video.	All participants were familiarized with CAI and interactive video through the small and large group presentations and demonstrations given.
(b) Each participant will experience CAI and interactive video software.	All 75 teachers and/or staff participants experienced CAI and interactive video through hands-on small and large group sessions. The interactive video and CAI software used was developed by the CID and covered many subjects such as English, Technical Mathematics, and Nursing.

Planned Objective	Implementation Description
(c) Each intern will utilize storyboarding, authoring language/ system, and video equipment in the production of an interactive video disc/ CAI software relevant to vocational education instruction.	The participating teachers were involved with the production of a demonstration interactive video disc. The vocational educators participated in all phases of interactive video design and production. The participants were involved in developing the content matter, served as subject matter experts and instructional designers, and were involved in planning for the video production. The participants assisted in the video production by setting up the shots, operating the equipment being featured, and were themselves the actors and actresses. The content used in these sample programs ranged from the demonstration of the materials used in a machine shop which was designated an exemplary program to examples of interactive instruction in a cosmotology program.
(d) Each institution will develop a plan to support the integration of interactive video technology.	Interest in the use and/or development of the technologies was generated and possible future applications for the technology were discussed during work sessions.

b. Conclusions and Recommendations

Development of a training program was one of the results of the project. The relationships made between Luzerne County Community College and the vocational technical schools will be significant in developing this new technology in the future. Numerous workshops and work sessions helped introduce participants to the technology and its utilization. Further development of the program can continue from the starting platform that was established as a result of this project. During the project implementation participants contributed a variety of ideas for IV/CAI development in the future. (See Section VII, **Attachments**). Some of the special requests that participants made during the project are identified in Section VII.

c. Dissemination

The written results of the project will be distributed to interested parties, including the directors of the participating AVTSs. The demonstration interactive video program, which was developed as a result of this project, will be used in presentations and demonstrations which the CID is frequently called upon to provide.

VII. Attachments

Workshop agendas:

West Side Area Vocational Technical School
- 12/18/86 Workshop. (5 faculty participants)
- 1/28/87 In-Service Training (43 faculty and staff participants)
- 3/19/87 Filmed Carpentry,Plumbing, and Sheet Metal shop (3 faculty participants)

Susquehanna Area Vocational Technical School
- 11/26/86 Individualized work sessions (11 faculty participants)
- 4/2/87 Filmed Cosmetology (2 faculty participants)
- 4/12/87 In-service presentation to entire staff(30 faculty,staff)

Wilkes-Barre Area Vocational Technical School
- 11/21/86 Individualized work sessions (5 faculty and staff participants)
- 2/11/87 Filmed Computer Repair shop (1 faculty)
- 2/13/87 In-Service Training (33 faculty and staff participants)
- 3/18/87 Filmed Machine Shop demo (1 faculty and 3 staff participants)
- 4/7/87 Evaluation and moodification of Machine Shop demo.(2 faculty 1 staff)

Lackawanna Area Vocational Technical School
- 10/13/86 In-Service Training (25 faculty and staff participants)
- 1/27/87 Work sessions (10 faculty and 1 staff)
- 3/13/87 Filmed CAD shop (1 faculty and 1 staff)

Hazleton Area Vocational Technical School
- 11/18/86 Individualized work sessions (8 faculty participants)
- 12/8/86 In-Service Training (32 faculty and staff participants)
- 3/19/87 Filmed Machine Shop and Welding (2 Faculty participants)

LUZERNE COUNTY COMMUNITY COLLEGE INTERACTIVE VIDEO TRAINING PROGRAM

PRESENTED BY:

The Center For Instructional Development

LUZERNE COUNTY COMMUNITY COLLEGE
INTERACTIVE VIDEO TRAINING PROGRAM

Computers, interactive video, and CAI instruction belong to the present and the future. All have become a challenging and exciting new dimension of the educational process to both educators and students. Innovative, creative teaching methods help to "spark" the interest of students. This interest in learning is evident in students who not only improve in academic ability; but also in their desire to participate, to be truly involved in the learning process.

It is the aim of the Center for Instructional Development at Luzerne County Community College to assist educators in the classroom use of interactive video and CAI instruction. The advancement of the latest technologies makes it necessary for educators to equip themselves with the knowledge to instruct their students in these areas. Members of the Center for Instructional Development staff at LCCC will be visiting area vocational technical schools to help in the development of materials personalized to meet their individual classroom needs.

Anyone interested in being a part of "teaching for the future" can become involved in this program. Please fill out the attached form and return it to:

Christina Grant
LCCC
Middle Rd. and Prospect St.
Nanticoke, PA 18634

or call 829-7325 for more information.

Name _____

Area of expertise _____

Institution _____

Address _____

_____

Phone _____

What activities would you like to participate in ?

Day meetings (Note the days and times that would be convenient for you).

( ) I would like to get periodic newsletters concerning the project.

( ) I would like to receive training information.

( ) I could be a team leader for a specific project.

( ) I could be a team member for a specific project.

( ) I would like to learn how to use an authoring language from a tutorial.

( ) I could review and evaluate programs being developed.

( ) I would like to review existing CAI and interactive video programs.

( ) I am too busy to be a part of this project at the present time but I might be available for future projects. (After June 1987).

Last year I was involved:
( ) Frequently
( ) Moderately
( ) Very little

AREA VOCATIONAL TECHNICAL SCHOOLS

Ideas

DATA COLLECTED

- Filming from Susquehanna VoTech on Mock boards: Cosmetology
- Filming from Hazleton VoTech: Machine shop and Masonry
- Lab safety filmings

IDEAS FOR LASER DISC

- Emphasis of Hands-on training
- How and Why IV can help the Vocational Technical Educators
- (The rewards of IV for the Vocational Technical Educator)
  - Testing
  - Reviewing
  - Individual training
  - Teaching (lab safety or shop materials)
  - Recruiting or tutorial material

- How the Vocational Technical Educators have helped in making of IV
  - Scriptwriting
  - Content materials
  - Instructor demonstrates
  - Class demonstrates
  - Prop material (Use of the shop itself)

Planning

Incorporating materials & ideas

Hands-on Training and Vocational Educators making IV
Narration: Mr. Marolo for masonry Hazleton
Content material: Lab safety
Instructor demonstrates: Machine shop Hazleton, Cosmetology Susqehanna
Class demonstrates: Masonry
Prop material: Any footage filmed at the VoTechs

Special notes:

VCR tapes needed for the Instructors **before** Laser editing:
Mock Boards - Susquehanna cosmetology
Demonstration - Hazleton machine shop
Introduction - Hazleton masonry **Mr. Marolo's script*
Special Thanks to teachers involved but not filmed
Mr. J. Moran - West Side VoTech Machine Shop
Mr. Martin - Wilke-Barre VoTech Video Production Shop
Mrs. M. Price - Wilkes-Barre VoTech Data Processing Shop
Mr. J. Comino - Susquehanna VoTech Data Processing Shop

After the introduction a menu will appear on the screen and the narration for each selection is:

1. Select choice #1 to see *Susquehanna Area Vocational Technical School's Cosmetology and Hazleton Area Vocational Technical School's Machine shop*. Both of these instructors have provided the demonstration for this scene.

2. Select choice #2 to see *Hazleton Area Vocational Technical Schools Masonry shop*. Mr. Marolo has provided the narration about the masonry shop and his class demonsrated.

3. Select choice #3 to see *Wilkes-Barre Area Vocational Technical School's Electrical construction and Welding shop*. Mr. Namey and Mr. Williams have donated the used of their laboratory facilities in the video production for interactive video.

4. Select choice #4 to see *Wilkes-Barre Area Vocational Technical School's Machine shop*. Mr. Grabowski has provided content material for this laboratory saftey demonstration.

*** At the same time the audio for each selection starts the Menu choice will be highlighted.**

First scene Introduction

Narration - Completed

Video - A scene where an instructor is utilizing IV with the class.

Second scene Cosmetology and Machine shop

Narration - Stating that Mrs. Hinkley is doing the demonstration for cosmetology and Mr. Tarapchak is doing demo for machine shop. Both are using IV for instructional purposes.

Video - Susquehanna cosmetology and Hazleton machine shop.

Third scene Masonary

Narration - Mr. Marolo's narration plus narration stating he did the narration, his class did the demonsration and he used IV for introduction/recruiting. (One of the rewards of IV for VoEd Educators.)

Video - The masonry shop at Hazleton VoTech.

Fourth scene Lab safety

Narration - Mr. Williams shop and Mr. Namey from electrical construction let us use their shops and students for video production of the Lab safety. This would be the use of IV for Safety instrucion.

Video - Lab Safety shootings at Wilkes-Barre VoTech of the electrical construction and welding shop.

Fifth scene Lab safety

Narration - Mr. Grabowski supplied content material for lab safety.

Video - the machine shop at Wilkes-Barre VoTech (filmed during Lab safety).

Laser Disc Narration

Computers, interactive video, and CAI instruction belong to the present and the future. All have become a challenging and exciting new dimension of the educational process to both educators and students. Innovative, creative teaching methods help to "spark" the interests of students. This interest in learning is evident in students who not only improve in academic ability, but also exhibit their desire to participate and be involved in the learning process.

It is the aim of the Center for Instructional Development at Luzerne County Community College to assist vocational educators in the development and utilization of instructional interactive laser disc and computer assisted instruction materials. The advancement of the latest technologies makes it necessary for educators to equip themselves with the knowledge to instruct their students in these areas.

Various instructors from each of the five area vocational technicals schools have become involved in this program of "teaching for the future". They have become involved in many different ways, from supplying content materials to narration, instructor demonstrations, class demonstrations, and the use of their laboratory facilities for video production. This hands-on training has broadened the scope of classroom activities for both the educator and the student.

Interactive Video has vast rewards for the Vocational Technical Educator due to the emphasis of hands-on training. The following scenes show a few of these rewards. Noting also that an instructor has participated in the making of each scene.

Masonry Narration

Written by: Mr. Sammy Marolo - Masonry Instructor Hazleton AVTS

The Masonry shop of Hazleton Area Vocational Technical School offers both male and female students the opportunity to learn the masonry and concrete trade by individualized instruction in highly specialized skills in block and brick laying, stucco, stone masonry, tile setting, ornamental brick work, and concrete masonry. Also, personal development is stressed and incorporated into the daily masonry curriculum. To accomplish this the students are encouraged to strive for proper conduct, leadership development, confidence in their ability as a craftsman, speed, perseverance for excellence in workmanship, and pride in craftsmanship. To help facilitate character development and trade skills the masonry shop strongly supports the V.I.C.A. (Vocational Industrial Club of America) achievement program and Olympic competition.

Mastery of the fundamental masonry skills by the students, will offer a great range of specialized skills that high-tech equipment and jobs can not replace. This skill can be utilized, improved, and profited from through-out their lifetime. Just look around - sidewalks, foundations, garages, driveways, chimneys, brick veneers, stucco, tile work (bathrooms and kitchens), and custom stone work, just to mention a few. These are skills a mason possesses and no machine can duplicate with the accuracy and speed of the mason. A skill that guarantees an income.

There is a shortage of highly skilled masonry tradesman both union and non-union in Northeast Pennsylvania and throughout the United States. Their skills are constantly in demand and the projection into the 1990's are even more impressive. The potential and availability for self-employment is the greatest asset of the bricklayer.

The instructor for the masonry shop at Hazleton Area Vocational Technical School is Sammy Marolo.

Narration Selection #1

Mrs. Hinkley, the cosmetology instructor at Susquehanna Area Vocational Technical School is seen here demonstrating hair cutting. This is one of the six tested catagories in the Pennsylvania State board examination. The other five catagories are facial, manicure, permanent waving, color, and hair styleing. Mrs. Hinkley uses interactive video to demonstrate to her students this pretesting process called Mock Boards. Her students can then view this interactive setup with out the hassle and expense of using the actual materials. They can view the entire process over or just review certain catagories.

Also involved in the use of interactive video is Mr. Tarapchak, the Machine shop instructor at Hazleton Area Vocational Technical School. He is shown here demonstrating *the use of this machine* . He also uses interactive video for classroom instruction. Mr. Tarapchak will use this particular piece to show individual students that may need special instruction due to the complexity of this machine. Instuction for the individual is one of the rewards of interactive video.

Narration for Selection #2

Shown here are the students of the Masonry shop at Hazleton Area Vocational Technical School. They are demonstating various masonary tasks. There are many tasks which a masonry student must master before graduating from Hazleton VoTech